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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,910	07/15/2003	David Champion	200208821-1	8961

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EXAMINER

LEE, CYNTHIA K

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,910

Applicant(s)

CHAMPION, DAVID

Examiner

Cynthia Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 3,4 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-16 and 18-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 15 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/15/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Election/Restrictions

Applicant's election without traverse of Group I-b (claims 1,2,5-16, and 18-23) in the reply filed on 12/19/2005 is acknowledged. Claims 3,4, and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Claims 24-42 have been canceled. Election was made **without** traverse in the reply filed on 12/19/2005.

Preliminary Amendment

The claims filed 12/19/2005 has been placed in the application file and the information referred to therein has been considered as to the merits.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 7/15/2003 has been placed in the application file and the information referred to therein has been considered.

Specification

The disclosure is objected to because of the following informalities: the description of the figures is incorrect. Pg. 8 (line 2) of the specification refers to 134 in fig. 10 as the fuel passage, in which case 152 would be also be fuel passage. However, pg. 8 line 20 indicates that 152 is an oxidant passage. "152" should be referred to as a "fuel passage." Appropriate correction is required.

Claims Interpretation

The "means for..." language in claim 19 was interpreted as not invoking 35 USC 112, 6th paragraph for the following reasons: 1) the specification does not refer to nor

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define a “means plus function” structure, and 2) the structural recitation in the “means for ...” language is inappropriate for invoking 35 USC 112, 6th paragraph.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 14-16 and 18 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a heat exchanger comprising an exhaust region defining a perimeter (pg. 11-12, fig. 22), does not reasonably provide enablement for a “fuel cell comprising an exhaust region defining a perimeter” as claimed in claim 14. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Because of the 35 U.S.C. 112, first paragraph rejection above, it is unclear whether the applicant is claiming a “fuel cell comprising an exhaust region defining a perimeter” or a “fuel cell comprising a heat exchanger

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comprising an exhaust region defining a perimeter." Thus, claims 14-16 and 18 have been treated to the extent that they were understood.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "substantially" in claim 13 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5-7, 9-12, 19-23 rejected under 35 U.S.C. 102(b) as being anticipated by Montemayor (US 6063517).

Montemayor discloses a spiral-shaped fuel cell assembly with an outer casing. The MEA is wound several times to form a spiral bundle from the periphery of the housing to the center. The reactant path follows the spiral bundle that extends around the perimeter. The hydrogen gas enters and exits from the hydrogen injection tubes located in the periphery and the center of the fuel cell assembly. The MEA winds around the hydrogen injection tube 24 (fig. 2) at least once around the perimeter. The

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oxidant inlet is also associated with the outer region. (See fig. 2 and 3 and 2:25-39 and 5:13-45)

Although Montemayor does not expressly disclose a reactant supply connected to the reactant inlets (applicant's claims 11 and 23), a reactant supply must necessarily be present for the hydrogen gas to be flowing through the hydrogen tubes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montemayor (US 6063517) as applied to claims 1 and 12 above and incorporated herein.

Montemeyor discloses all the limitations of claims 1 and 12. Montemayor does not disclose a byproduct outlet region comprising first and second byproduct outlet regions (applicant's claim 8). However, Montemayor discloses one byproduct outlet region and it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Although Montemayor does not disclose a curvilinear spiral shape fuel cell, Montemayor discloses a spiral shape fuel cell and the courts have held that changes in shape are a matter of choice which a person of ordinary skill in the art would have found

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obvious absent persuasive evidence that the particular configuration of the claimed invention was significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See MPEP 2144.04.

As best understood, claims 14-16 and 18 are rejected under 35 U.S.C. 102(b) as being unpatentable over Nakanishi (US 4910100) in view of Montemayor (US 6063517).

Nakanishi discloses a fuel cell with a spiral shaped gas flow path with an inner and an outer region in which an exhaust region defines a perimeter (fig. 6(A)). Although Nakanishi's assembly is a stacked plate assembly, Montemayor discloses a spiral shaped MEA. Montemayor teaches that the advantage to a spiral shaped fuel cell assembly is that the fuel cell could be increased in size simply by adding more spiral wraps without unduly increasing the distance over which the electrical current must be collected (1:50-55). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakanishi's plate assembly with a spiral-shaped assembly for the benefit of decreasing the distance that current is collected, as taught by Montemayer.

Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montemayor (US 6063517) as applied to claims 1 and 20 above and incorporated herein, in view of Wattlelet (US 2003/0011721).

Montemeyor discloses all the limitations of claims 1 and 20. Although Montemayor does not disclose a heat exchanger associated with the housing and

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connected to the exhaust port, Wattelet discloses a fuel cell with an integrated heat exchanger unit. The integrated heat exchanger unit exchanges heat with the air outlet to cool the fuel cell ([0008] and fig. 1). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add an integrated heat exchanger unit to the cathode exhaust for the benefit of cooling the fuel cell.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ckl

Cynthia Lee


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER